

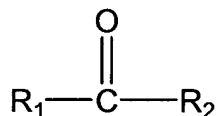
REMARKS

Rejection under 35 USC § 103

Claims 1-20 were rejected solely under 35 USC § 103(a) as being unpatentable over Tedeschi *et al.*, U.S. Patent No. 3,709,946 ("Tedeschi"). (Paper No. 20060914 at 2.)

For the reasons set forth below, the rejection, respectfully, is traversed.

Tedeschi discloses "a process for making acetylenic alcohols which does not require the use of an added solvent medium." (Col. 1, lines 63-65.) Tedeschi discloses that the process "involv[es] the reaction of acetylene with a ketone in the presence of a co-catalyst system." (Col. 1, lines 24-26.) Tedeschi discloses that "any ketone may be reacted with the liquefied acetylene ... the preferred ketones have the general formula



wherein R₁ and R₂ may be the same or different radicals selected from the group consisting of hydrogen, alkyl groups containing 1-20 carbon atoms, ... cycloalkyl, and aryl." (Col. 2, lines 19-34.) Tedeschi also discloses that the co-catalyst system is "an alkali metal hydroxide and liquid ammonia." (Col. 1, lines 71-72.) Tedeschi discloses that the "alkali metal hydroxide is used in catalytic quantities, i.e., less than equimolar quantities with respect to the ketone, preferably at most about .5 mole per mole of ketone but at least .001 mole per mole of ketone." (Col. 2, lines 60-64.)

In making the rejection, the Examiner asserted that Tedeschi discloses "a process for preparing an acetylenic alcohol by reacting a ketone with liquefied

acetylene in the presence of a co-catalyst system comprising liquid ammonia and an alkali metal hydroxide.” (Paper No 20060914 at 2.)

The Examiner acknowledged, however, that Tedeschi differs from the claimed invention in that it does not specifically disclose the seven carbonyl compounds recited in, e.g., claim 1. Rather, the Examiner asserted that Tedeschi discloses “that any ketone may be used....” (*Id.* at 3.) In addition, the Examiner acknowledged that, Tedeschi differs from the claimed invention in that Tedeschi discloses “process conditions such as temperature, pressure and concentration [that] may not exactly fall within the claimed ranges.” (*Id.*) The Examiner also acknowledged that “Tedeschi does not disclose a continuous process” as claimed. (*Id.*)

The Examiner then concluded that “since Tedeschi et al [discloses] that any ketone can be used in his process of preparing an acetylenic alcohol; it would be obvious ... to prepare such an alcohol using any ketone and expect to arrive at the desired acetylenic alcohol.” (*Id.*)

As is well settled, the Examiner bears the burden to set forth a *prima facie* case of unpatentability. *In re Glaug*, 62 USPQ2d 1151, 1152 (Fed. Cir. 2002); *In re Oetiker*, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); and *In re Piasecki*, 223 USPQ 785, 788 (Fed. Cir. 1984). If the PTO fails to meet its burden, then the applicant is entitled to a patent. *In re Glaug*, 62 USPQ2d at 1152. As is fundamental, a *prima facie* case of obviousness must be based on facts, “cold hard facts.” *In re Freed*, 165 USPQ 570, 571-72 (CCPA. 1970). Moreover, an Examiner’s belief or conjecture is no substitute for statutory prior art. *In re Kratz*, 201 USPQ 71, 76 (CCPA 1979) citing, *In re Antonie*, 195

USPQ 6 (CCPA 1977). ("We have previously rejected the argument that undirected skill of one in the pertinent art is an adequate substitute for statutory prior art.").

Initially, we note that the rejection uses the wrong standard for determining obviousness. The rejection relies upon an "***obvious ... to prepare***" standard that is not found in the statute or precedential authority. The problem with the standard adopted by the Examiner in this rejection is that to know what ketone to choose from the genus of "any ketone," one must already know what the "desired acetylenic alcohol" is. Thus, to arrive at the claimed invention using this analysis, one would have to already know what the claimed invention is.

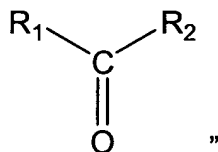
This standard reeks of the kind of hindsight analysis forbidden by USPTO rules and precedent. Indeed, the claims are not to be used as a blueprint for determining obviousness. See *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570 (Fed. Cir. 1995) ("The invention must be viewed not after the blueprint has been drawn by the inventor, but as it would have been perceived in the state of the art that existed at the time the invention was made."); see also *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time.").

Because the rejection relies on hindsight analysis, it is devoid of the facts and reasoning required to support a *prima facie* case of obviousness. For this reason alone, the rejection is legally and factually deficient and should be withdrawn.

The rejection is legally infirm for an additional reason. As is well settled, the disclosure of a broad genus does not *per se* render obvious a species or subgenus contained therein. See, e.g., *In re Baird*, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994); see

also MPEP § 2144.08 (8th Ed., Rev. 5, August 2006, p. 2100-144). To support a *prima facie* case of obviousness, a cited document must provide motivation for one of ordinary skill in the art to select the claimed species to arrive at the claimed invention. See MPEP § 2144.08 (p. 2100-146). ***“Office personnel should determine whether one of ordinary skill in the relevant art would have been motivated to make the claimed invention as a whole, i.e. to select the claimed species or subgenus from the disclosed prior art genus.”*** See also *In re Deuel*, 34 USPQ2d 1210, 1214-5 (Fed. Cir. 1995) (“[A] *prima facie* case of unpatentability requires that the teachings of the prior art suggest *the claimed compounds* to a person of ordinary skill in the art.”) (Emphasis original.))

The Examiner has not met this burden. The Examiner acknowledged that Tedeschi discloses ketones of the “following generic formula wherein R1 and R2 may be the same or different radicals selected from the group consisting of Hydrogen, alkyl groups containing 1-20 carbon atoms, cycloalkyl, and aryl (Column 2, Lines 21-42):



(Paper No. 20060914 at 3.) Thus, that Examiner acknowledged that a broad genus in an asserted document is just the beginning, not the end, of the analysis. It was the Examiner's burden to explain why the seven specific ketones recited in the claims would have been obvious given the broad genus disclosed in Tedeschi. This the Examiner did not do.

At best the Examiner asserted that “since Tedeschi et al [discloses] that any ketone can be used in his process of preparing an acetylenic alcohol; it would be obvious ... to prepare such an alcohol using any ketone and expect to arrive at the desired acetylenic alcohol.” (*Id.* at 3.) This type of Examiner conjecture cannot be substituted for the required facts or evidence. The Examiner’s conclusory language does not provide the reasoning or facts required to explain why one would be motivated to select the seven claimed ketones from the broad genus of Tedeschi. A genus that contains tens, if not hundreds, of thousands of members. Thus, the Examiner failed to meet the burden to demonstrate where in Tedeschi there is a motivation or suggestion to select the claimed subgenus from the disclosed prior art genus to arrive at the claimed invention. For this additional reason, the rejection is both legally and factually deficient and should be withdrawn.

We further note that the claims recite a “molar ratio of the alkali metal hydroxide to the carbonyl compound is less than 1:200.” (See claim 1.) The Examiner, however, failed to address this recitation in any way. While the Examiner recognized that “the process conditions such as ... concentration may not exactly fall within the claimed ranges,” the Examiner summarily dismissed such differences by stating that “merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality.” (Paper No. 20060914 at 3.)

The claims, however, recite a “molar ratio.” The closest the rejection comes to recognizing the recitation of a molar ratio is this discussion of “concentration.” As is well known, concentration is a measure of the amount of a component of a reaction mixture in relation to amount of the total reaction mixture. On the other hand, a

molar ratio of alkali metal hydroxide to ketone, as recited in, e.g., claim 1, conveys the relative amounts of one component to another component of a reaction mixture without regard to either component's concentration.

Thus, the rejection fails to even address the claimed invention. Having failed to address what is actually claimed, the rejection does not, indeed cannot, present a *prima facie* case. The rejection is legally and factually deficient for this reason also and should be withdrawn.

Moreover, even if this fatal gap is ignored, the Examiner's analysis flies in the face of the MPEP's caution that "Only Result-Effective Variables Can Be Optimized." (MPEP 2144.05(II)(B) p. 2100-141):

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)

The Examiner has not even asserted that the molar ratio of alkali metal hydroxide to ketone is a results effective variable, much less that this molar ratio is recognized as such. Accordingly, the rejection does not, and indeed cannot, demonstrate that the choice of a molar ratio is routine experimentation. Thus, for this additional reason, the rejection does not present a *prima facie* of obviousness and should be withdrawn.

In addition, specifically in relation to the "Obviousness of Ranges," the MPEP instructs that a "*prima facie* case of obviousness may also be rebutted by showing that the art, in any material respect, teaches away from the claimed invention. *In re Geisler*, 116 F.3d 1465, 1471, 43 USPQ2d 1362, 1366 (Fed. Cir. 1997)." (MPEP 2144.05(III) p. 2100-141).) Tedeschi contains exactly this type of teaching away.

Tedeschi discloses "catalytic quantities [of the alkali metal hydroxide], i.e., less than equimolar quantities with respect to the ketone, preferably at most about .5 mole per mole of ketone but at least .001 mole per mole of ketone." (Col. 2, lines 60-64.) But, Tedeschi discloses only three specific molar ratios of metal alkali hydroxide to ketone. (See, Examples 1-3 summarized in Table 1.) The molar ratios of metal alkali hydroxide to ketone disclosed by Tedeschi are about 1:12, 1:6, and 1:6 (Examples 1, 2, and 3, respectively.) As shown in Table 1, the percent conversions based on acetone for these three ratios are 48.2, 61, and 87, respectively.

Example	KOH (moles)	Acetone (moles)	Molar Ratio KOH:Acetone	Conversion (%)
1	0.021	0.25	1:11.9	48.2
2	0.025	0.15	1:6	61
3	0.025	0.15	1:6	87

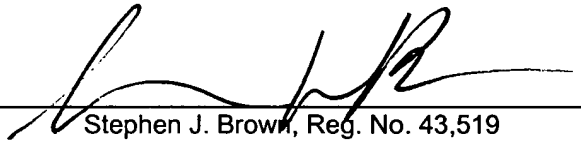
Table 1. Molar ratio of KOH to acetone and percent conversion based on acetone.

Accordingly, if the disclosure of Tedeschi is used to "optimize" the reaction, i.e., to maximize the percent conversion, one would look to increase the molar ratio of metal alkali hydroxide to ketone. Thus, to maximize percent conversion, Tedeschi suggests increasing the molar ratio of metal alkali hydroxide to ketone, e.g., to ratios of 1:4 or 1:2. In stark contrast, the claimed molar ratio is "less than 1:200."

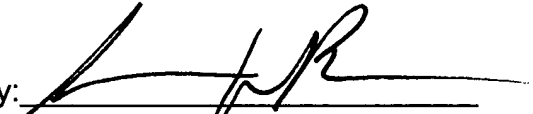
Thus, Tedeschi teaches away from the claimed invention. For this reason also, the rejection has been rebutted and should be withdrawn.

Accordingly, for the reasons set forth above, withdrawal of the rejection and allowance of the claims are respectfully requested. If the Examiner has any questions regarding this paper, please contact the undersigned.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 26, 2006.


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